

Atty docket # 7100-038

**REMARKS**

Claims 1-7, 11, 12, 25, and 30 were initially rejected by the Examiner. Claims 8-10, 13-24, 26-29, and 31-40 are withdrawn following restriction/election.

The claims 1-7, 11, 12, 25, and 30 were rejected substantively under 35 USC 102 as being anticipated by Jayaraman et al. (US 6381482). The claims 2-6 were rejected under 35 USC 102 or 103(a) as being unpatentable over Jayaraman et al.

The claims 1-7, 11, 12, 25, and 30 were rejected under 35 USC 102(e) as being anticipated by Wheeler et al. (US 5029977). The claims 2-6 were rejected under 35 USC 102 or 103(a) as being unpatentable over Wheeler et al.

The Applicant hereby traverses the rejections made by the Examiner in the Office Action are hereby traversed based on the following remarks and in view of the amended claims.

While the Jayaraman et al. reference teaches a woven fabric, this reference does not teach a three-dimensional (3-D) engineered fiber preform formed by intersecting yarn system components that form an orthogonal structure as with the present invention; instead, it teaches away from the claimed invention by reciting woven fabric or fiber network that include interlacing yarns within the fabric body itself, not merely intersecting yarns that have no interlacing (i.e., wrap angle). By contrast, the present invention provides for the formation of a three-dimensional engineered fiber preform formed by intersecting yarn system components. Importantly, avoiding the bending of yarn components at the areas of wrap-around or interlacing as in prior art woven fabrics provides advantageous results for the present invention; the present invention uses substantially open or straight channels within the fabric for insertion or inclusion of

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optical fiber components or other systems. Thus avoiding the bending of yarn systems in the fabric of the present invention provides open channels because the yarn components merely intersect and do not wrap or interlace with respect to each other. The resultant fabric is an orthogonal matrix of yarn component systems that collectively stay together due to complete 180 degree turn-around at the edges, not within the body of the fabric. Therefore, Jayaraman teaches away from the present invention and is not appropriately applied as either a 102 or 103 reference.

Similarly, Wheeler et al. (US 5029977) as illustrated in the figures 2 and 3, the warp and weft yarn systems are interlacing and include some wrap angle of yarns around the yarns of the opposing system to secure the yarn components with respect to each other to form a fabric body; this reference utilizes traditional woven fabrics, which teach away from the present invention, which uses engineered 3-D orthogonal structures wherein the yarns systems are intersecting, not interlacing. The intersecting, not interlacing, yarn systems of the present invention advantageously provide non-bending of fibers within the yarn systems. Importantly, in particular with optical fibers, the elimination of bending of the fibers reduces or eliminates loss of light and/or information transmission at the bends. Thus, the Wheeler reference also teaches away from the present invention and is not appropriately applied as either a 102 or 103 reference.

In all claim rejections, neither of the cited references teach a 3-D orthogonal structure as with the present invention; instead, they teach away from the claimed invention by reciting a woven material that is made by traditional weaving in a standard over-and-under fashion, which creates interlacing with wrap-around or bending of the yarns to secure them with respect to each other. The 3-D reference within these

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references by the examiner is a traditional multilayer fabric wherein the warp and weft yarns are interwoven and interlacing via a wrapping angle of intersection. By contrast, the present invention provides for a 3-D fabric that is formed by "true" 3-D weaving of orthogonal, intersecting but not overlapping, interlacing, or wrapping of warp and weft yarns, but requiring a third yarn system (z-yarns) to provide the interconnectivity and retention of warp yarns with respect to the weft yarns (set forth in the reference to and incorporation of the 3-D orthogonal fabric taught by U.S. Patent No. 5,085,252, as set forth on page 6 of the original specification. Thus, both of the cited references actually teach away from the present invention and are not appropriately applied as either 102 or 103 references.

As such, claims 1-7, 11, 12, 25, and 30 are asserted with the foregoing arguments to distinguish over the prior art.

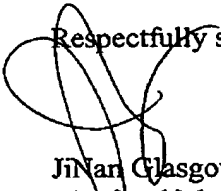
### **CONCLUSION**

In view of the foregoing, the pending claims 1-7, 11, 12, 25, and 30 distinguish over the prior art as asserted herein, are fully patentable and in allowable condition.

If any issues remain outstanding, incident to the allowance of the application, Examiner Pierce is respectfully requested to contact the undersigned attorney at (919)-664-8222 or via email at [jinan@neopatents.com](mailto:jinan@neopatents.com) if any issues remain, in order that prosecution of the application may be concluded favorably to the applicant, consistent with the applicant's making of a substantial advance in the art and particularly pointing out and distinctly claiming the subject matter that the applicant regards as the invention.

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Respectfully submitted,

  
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